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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/577,487	05/25/2000	Thomas S. Heath	3351-042	6601

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EXAMINER

YODER III, CHRISS S

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 02/13/2004

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/577,487

Applicant(s)

HEATH, THOMAS S.

Examiner

Chriss S. Yoder, III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are in lines 8-10 of claim 12.
2. Claim 12 will be analyzed and examined as understood by the examiner at the time of examination:

*The method of claim 11, comprising:
Calculating a centroid for each region of interest in a first frame;
Comparing the centroid in the first frame with all centroids of the
next adjacent frame;
select centroids in the next adjacent frame within an error
tolerance;
correlating an average distance from every pixel in the first frame
with every pixel in corresponding structure in the next adjacent frame;*

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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3. Claims 1 and 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Burt et al. (US Patent # 6,999,662).

4. In regard to claim 1, note Burt discloses the use of a computer implemented method comprising extracting individual frames of imagery taken from video (column 5, line 66 – column 6, line 2), identifying commonality from one frame to the next (column 17, lines 45-47), and overlapping the individual frames and displaying an image representing a continuous area (column 17, lines 45-47).

5. In regard to claim 13, this is an apparatus claim, corresponding to the method in claim 1. Therefore, claim 13 has been analyzed and rejected as previously discussed with respect to claims 1.

6. In regard to claim 14, this is an apparatus claim, corresponding to the method in claim 1. Therefore, claim 14 has been analyzed and rejected as previously discussed with respect to claims 1.

7. In regard to claim 15, this is an apparatus claim, corresponding to the method in claim 1. Therefore, claim 15 has been analyzed and rejected as previously discussed with respect to claims 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 2-4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burt et al. (US Patent # 6,999,662).

9. In regard to claim 2, note Burt discloses the use of a computer implemented method comprising extracting individual frames of imagery taken from video, identifying commonality from one frame to the next, and overlapping the individual frames and displaying an image representing a continuous area. Therefore, it can be seen that the Burt device lacks the use of a camera that takes images at 30 frames per second. Official notice is taken that the concepts and advantages of using a camera that takes images at 30 frames per second are notoriously well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Burt device to include the use of a video camera that takes images at 30 frames per second in order to allow the video to also be displayed on a conventional television.

10. In regard to claim 3, note Burt discloses the use of MPEG compression to store the images (column 15, lines 3-6).

11. In regard to claim 4, note Burt discloses the conversion of MPEG files into black and white images (column 5, lines 7-12).

12. In regard to claim 6, note Burt discloses the use of regions of interest in order to overlap two images (column 17, lines 45-47).

13. In regard to claim 7, note Burt discloses the compensation of platform/camera motions (column 19, lines 12-15).

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burt et al. (US Patent # 6,999,662) in view of Yagi et al. (US Patent # 6,268,884).

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15. In regard to claim 5, note Burt discloses the use of a computer implemented method comprising extracting individual frames of imagery taken from video, identifying commonality from one frame to the next, and overlapping the individual frames and displaying an image representing a continuous area. Therefore, it can be seen that the Burt device fails to detect the edge of an object by detecting changes in the intensity from one pixel to another and drawing a line at the detected edge. Yagi discloses the detection of the edge of an object by detecting changes in the intensity from one pixel to another and drawing a line at the detected edge (column 5, lines 21-24; after detecting the brightness values, the outline of the image is created). Yagi teaches that the detection of the edge of an object by detecting changes in the intensity from one pixel to another and drawing a line at the detected edge is preferred in order to outline the objects to compensate for the roughness of edges. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Burt device to include the detection of the edge of an object by detecting changes in the intensity from one pixel to another and drawing a line at the detected edge in order to outline the objects to compensate for the roughness of edges.

16. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burt et al. (US Patent # 6,999,662) in view of Yagi et al. (US Patent # 6,268,884), and in further view of Takiguchi et al. (US Patent # 6,549,681).

17. In regard to claim 8, note Burt discloses the use of a computer implemented method comprising extracting individual frames of imagery taken from video, identifying commonality from one frame to the next, overlapping the individual frames and

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displaying and image representing a continuous area, and the use of regions of interest in order to overlap two images . Therefore, it can be seen that the Burt device fails to detect the edge of an object, follow adjacent pixels until an off pixel is detected, count the number of on pixels and if above a threshold, designate as a structure, and repeating the process for the entire image. Yagi discloses the detection of the edge of an object (column 5, lines 21-24; and figure 5), follow adjacent pixels until an off pixel is detected (column 5, lines 21-24; and figure 5), and repeating the process for the entire image (column 5, lines 21-24; and figure 5). Yagi teaches that the detection of the edge of an object by detecting changes in the intensity from one pixel to another and drawing a line at the detected edge is preferred in order to outline the objects to compensate for the roughness of edges. Takiguchi discloses the counting of pixels and comparing the total to a threshold (figure 28: S1303-S1304; if the number of pixels is greater than the threshold, then continue with the image overlapping, otherwise look for other structures). Takiguchi teaches that the counting of pixels and comparing the total to a threshold is preferred in order to only identify objects that are big enough to be used as structures to match images and overlap correctly. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Burt device to include the detection of the edge of an object, follow adjacent pixels until an off pixel is detected, count the number of on pixels and if above a threshold, designate as a structure, and repeating the process for the entire image in order to outline the objects to compensate for the roughness of edges and to correctly overlap the images using the proper structures.

18. In regard to claim 9, note Yagi discloses the storage of the location of on pixels within each designated structure (column 6, lines 10-15).

19. In regard to claim 10, note Yagi discloses the creation of a line in the image to distinguish where the structure is located (column 5, lines 21-24; column 5, lines 50-55; it would be implied that in the process of creating this line the pixel values are changed in order to compensate for the roughness of edges, thereby avoiding the use of these pixels in future structures).

20. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burt et al. (US Patent # 6,999,662) in view of Takiguchi et al. (US Patent # 6,549,681).

21. In regard to claim 11, note Burt discloses the use of a computer implemented method comprising extracting individual frames of imagery taken from video, identifying commonality from one frame to the next, overlapping the individual frames and displaying an image representing a continuous area, and the use of regions of interest in order to overlap two images. Therefore, it can be seen that the Burt device lacks the correlation of regions of interest by comparing each region of interest to each other region of interest. Takiguchi discloses the correlation of regions of interest by comparing each region of interest to each other region of interest (column 32, lines 45-67; the correlation is done using the comparison of regions from one frame to the next; and figures 47, 49, and 50). Takiguchi teaches that the correlation of regions using comparison is preferred in order to ensure that the correct regions are going to be overlapped to create the correct mosaic. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Burt device to include the correlation of regions

of interest by comparing each region of interest to each other region of interest in order to ensure that the correct regions are going to be overlapped to create the correct mosaic.

22. In regard to claim 12, note Takiguchi discloses the calculation of a centroid for each region of interest in the first frame (figure 47: A-1), comparing the centroid in the first frame with the centroids in the next frame (column 32, lines 45-67), selecting the centroid in the next frame within error tolerance (column 32, lines 45-56), correlating an average distance from every pixel in the first frame with corresponding structure in next frame (column 32, lines 45-67).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US005995095A: note the use of mosaic images of zoomed images.

US006512857B1: note the use of edge detection for combining images.

US005657402A: note the use of mosaic images of zoomed images.

US005629988A: note the use of aligning frames to combine and create a mosaic.

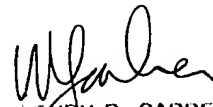
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chriss S. Yoder, III whose telephone number is (703) 305-0344. The examiner can normally be reached on M-F: 8 - 4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber, can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-HELP.

CSY
February 9, 2004


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
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